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Excessive Internet Use among European Children

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Summary

This report presents new findings and further analysis of the EU Kids Online 25-country survey regarding excessive use of the internet by children. It shows that while a number of children (29%) experienced one or more of the five components associated with excessive internet use, very few (1%) can be said to show pathological levels of use.

Time is not necessarily a problem

Spending a lot of time online is not necessarily a sign of a child having problems related to internet use. The term 'excessive use' was chosen to indicate a pattern of use that is repetitive, compulsive and uncontrolled. The results suggest that those children who are most vulnerable to excessive internet use and its negative consequences are those who are older, with emotional problems and high levels of sensation-seeking. To prevent excessive internet use, it is recommended that parents be actively involved in their child's online activities through support and discussion, especially, but not only, when a child has been bothered by something online.

European differences

The percentage of children who responded positively to at least one of the items related to excessive internet use ranged from 17% in Italy to 49% in Estonia. This was mostly 'surfing the internet when not really interested' and responding positively to this item does not mean that children are at risk. The highest level of pathological use was found in Cyprus where 5% of children experienced all five components of excessive internet use.

Children most at risk

The results suggest that those children who are most vulnerable to excessive internet use and its negative consequences are those who are older, have emotional problems and exhibit high levels of sensation-seeking. Spending more time online might lead children who are already psychologically vulnerable to reach pathological levels of excessive use.

Introduction

The internet has become an integral part of children and young people's lives. The increased time spent online is prompting questions about whether they are in control of their internet usage. Concerns have been expressed that too much time on the internet can negatively influence several aspects of young people's lives, perhaps leading to: declining school results or even dropping out of school; increased family tension; abandoned hobbies; psychological problems such as depression, anxiety or low self-esteem; and physical health problems due to sleep deprivation and lack of physical activity (Young & Abreu, 2011). Nevertheless, it is not at all clear whether excessive internet use is the cause of these problems - it could be a symptom or a consequence of these or other underlying troubles. The case of 11-year-old Martin, a keen fan of the massive multiplayer online role-playing game World of Warcraft, illustrates the complexity of the relationships between intense use of the internet and young people's everyday lives (Wood, 2008, p. 173):

> Martin was an only child who did not have many friends, at least not in the 'real' world but he enjoyed the various adventures that he was involved in with his gaming friends. He admitted that he did play as much as he could and was happiest when he was playing. However, Martin confided that he was being bullied at school and hated going there. His game playing was his way of coping with the experience, and it allowed him to socialise without going outside and possibly being bullied again. He had not told anyone else about the bullying. Martin was distraught, not only was he getting bullied, his only escape from the reality of his existence was being threatened. If Martin could not play online with his friends he felt that he would have nothing enjoyable left in his life.



What is excessive internet use?

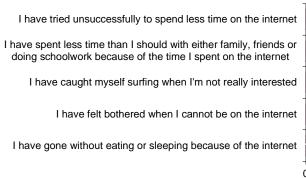
It is not always the time spent online that makes internet use problematic and 'excessive', but the impact of internet use on what might be called a 'balanced life'. In this respect, the fear around excessive internet use echoes similar fears that followed on from the introduction of radio, television, computers and mobile phones. When negative outcomes first became associated with repetitive, compulsive and uncontrolled use of online technology, they led to the term 'internet addiction'. This label was, and remains, controversial, and different researchers use different terms to describe this situation, such as internet addiction, pathological internet use, problematic internet use and compulsive internet use. In this report we use the term 'excessive internet use' to steer us away from discussing in medical and disease terms behaviour that may cause concern among parents and policy makers. However, as will become clearer below, the notion of excessive internet use entails more than the amount of use.

Although there is agreement about how to describe the symptoms of excessive internet use, researchers do not agree about the extent to which it can be considered an addiction and thus, a pathology. Widyanto and Griffiths (2006) maintain that it is important to make a distinction between blaming technology for causing the problem and understanding technology as revealing problems with origins elsewhere. Excessive internet use is not acknowledged as an official disorder and is not included in diagnostic manuals such as the American Psychiatric Association *Diagnostic and statistical manual IV* (DSM IV) (Block, 2008). Excessive internet use is therefore not an official 'illness', but we can see it as highlighting problems around children's ability to control their online activities and, in particular, the negative consequences that can result from their lack of control.

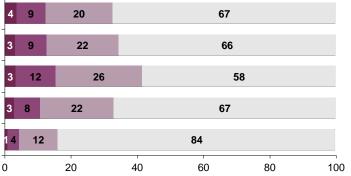
Prevalence of excessive internet use among European children

While there are no hard and fast rules as to how much internet use is too much, 'excessive' internet use is about more than simply the amount of time spent online. The scientific community uses several different scales to indicate in more detail the different dimensions that can become a cause for concern. Mark Griffiths proposed six basic components of addictive behaviour on the internet: salience (how much thoughts of the internet dominate a person's life). mood change (subjective experiences influenced by pursued activity), tolerance (people need to spend more time on the internet to get the same effect), withdrawal symptoms (negative feelings and emotions, which follow the termination of activity), interpersonal conflict (mostly with those in close social relationships) or intrapersonal conflict (occurring solely in the individual's own mind), and relapse (where they try to reduce the amount of internet use and fail) (see Griffiths, 2000, for more details). His list of six items refers not so much to the amount of internet use as to the (negative) consequences of this use, and the way it makes people feel. The EU Kids Online survey used questions that were intended to measure these dimensions.

Figure 1: Excessive internet use among European children (%)



■% Very often ■% Fairly often ■% Not very often ■% Never/almost never

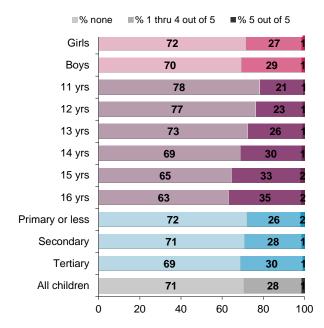


Base: All children aged 11-16, n = 19,834.



EU Kids Online asked children aged 11-16 how often they had experienced the following five components of excessive internet use: 'I have gone without eating or sleeping because of the internet' (salience), 'I have felt bothered when I cannot be on the internet' (withdrawal), 'I have caught myself surfing when I am not really interested' (tolerance), 'I have spent less time than I should with either family, friends or doing schoolwork because of the time I spent on the internet' (conflict), and 'I have tried unsuccessfully to spend less time on the internet' (relapse). Griffiths suggests that an individual is 'addicted', and hence a more significant problem exists, only if all components are present. Figure 1 shows frequencies of the answers of European children aged 11-16 for these five components.

Figure 2: Number of excessive use indicators out of five among European children, by gender, age and parent education



Base: All children aged 11-16, *N* = 19,834.

Note: Percentages are those who indicated experiencing the relevant behaviours 'very often' or 'fairly often'.

As Figure 1 shows, children were most likely to report that they caught themselves surfing when they were not really interested -42% experienced this at some time. Children were least likely to say that they had gone without eating or sleeping because of the internet -17% experienced this. In the analyses that follow we consider those children who said they did something

'fairly' or 'very often' as showing behaviour that might be a cause for concern. However, the answer 'not very often' is not considered as an indicator of excessive internet use. The EU Kids Online data suggests that the percentage of European children who experienced five out of the five items of excessive internet use (who answered 'very' or 'fairly often' to all questions) was low – only 1% (see Figure 2). We can still learn some things from children who experienced one or more behaviours associated with excessive internet use. Interestingly, among these children, there were significant differences between boys and girls, between young people from different age groups and between children from households where parents had different educational backgrounds.

There were only small differences between households with different levels of education. Thirty-one per cent of children of parents with tertiary (university and further) education and 29% of those with up to secondary education indicated at least one of the excessive use experiences. Younger children were less likely to use the internet excessively. At age 11 only 22% indicated one or more experiences of excessive use occurring 'very' or 'fairly often', while at age 16 this rose to 37%. This increasing incidence reflects a complex range of influences and opportunities, such as older children being more likely to have a computer in their bedroom, and being more likely to use the internet to connect with their friends outside school hours. Gender differences were very small.

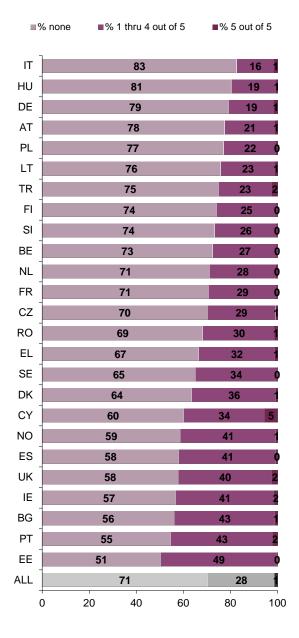
European differences

Not only were there differences between children from different socio-demographic backgrounds, as shown in Figure 2, there were also differences between the different European countries involved in the EU Kids Online study.

Figure 3 shows that Estonia was where children were most likely to indicate that they had experienced at least one aspect of excessive use. Nevertheless it was in Cyprus that children were more likely to have experienced all five of the indicators measured (5% of children said they had experienced five out of five excessive use indicators). Italy was the country in which children were least likely to indicate any experiences related to excessive use.



Figure 3: Number of present excessive use indicators out of five for European countries



Base: All children aged 11-16, *n* = 19,834.

National differences are likely to reflect a complex range of factors. These include, for example, parents' level of education, the variability of widespread internet access, the amount of attractive online materials in the children's mother tongue, children's access to the internet including their access to online mobile devices and different cultural norms regarding the amount of time children should use media and technology.

The EU Kids Online data show that the most frequently mentioned factor relating to excessive internet use was

a child catching him- or herself surfing when they were not really interested. Between 8% of respondents in Hungary and 31% in Spain said they had done this 'very' or 'fairly often'. It is worth noting here that this is not a problem behaviour in most contexts - a child may use the internet to 'fill in time', rather than, for example, watching television. Bulgaria, Romania and the UK were the three countries where another component of excessive internet use got significantly more mention than surfing behaviour. In Bulgaria the most frequently mentioned issue was children who 'very' or 'fairly often' felt bothered when they could not be online (31%). In Romania the challenge was unsuccessfully trying to spend less time online (18%), and in the UK it was spending less time with friends, family or schoolwork because of time spent online (27%).

The country-level data indicate the impact of social and cultural variation on patterns of use, especially regarding how important the internet was within the overall context of the child's interpersonal and leisure activities. This adds complexity to the analysis of results. Some countries that had the highest rates of one or more indicators of excessive internet use were also those where the levels of use were harder to explain using the model presented in the next section.

Explaining excessive internet use

The relatively rare occurrence of all five components of excessive internet use, as measured by negative consequences, indicates that the behaviour might be less prevalent than people fear. However, general tables do not really help us to understand which children are most likely to be at risk of excessive internet use. In fact, research shows that excessive use in children is commonly found alongside other problematic online and offline behaviour, such as psychological and emotional difficulties, drinking alcohol and substance abuse. This suggests that children's engagement with computers and technology should be understood within the wider context of their everyday life (Ko et al., 2006). EU Kids Online results also suggest that among European children, excessive internet use was not only associated with risky offline activities, but also with a variety of risky online activities: bullying others online, meeting new online contacts offline and sending sexual messages online (Smahel & Blinka, 2012). We therefore argue that it is only possible to understand the origins of a child's excessive internet use by locating a child's online behaviour within that child's broader social and



psychological context, and with reference to how the young person uses the internet in general.

In the next section we briefly discuss two key theories that aim to explain excessive use. The first is the psychological theory of 'needs compensation', and the second theory relates to 'digital inclusion'.

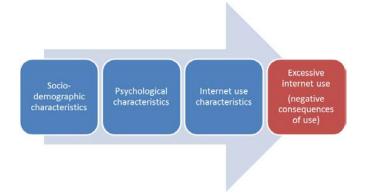
Psychological approaches suggest that people use the internet excessively to compensate for social or psychological difficulties, and deficits in personal wellbeing in terms of their everyday offline life. Studies have linked sensation-seeking (a tendency to pursue excitement and sensory pleasure), loneliness and emotional problems (such as depression and low selfconfidence) to excessive internet use (Mehroof & Griffiths, 2010). According to this theory, children who are psychologically vulnerable are more likely to be at risk of excessive internet use since they are trying to compensate for a problem in their offline lives. One major qualification here is that there is little agreement about whether these psychological characteristics are a result, or a cause, of excessive internet use, as illustrated by the earlier anecdote of Martin. We can expect that where a child already experiences social and psychological difficulties, this increases the risk of that child becoming involved in excessive internet use. It is also worth noting, as with Martin, that the child may not see their internet use as a problem but as a positive, coping response to other social, emotional and psychological challenges in the child's life. On the other hand, emotional and psychological problems can increase when a child experiences excessive internet use.

The theory of digital inclusion begins with the argument that extensive use of the internet is a positive thing. Researchers in this area point out that people who have many resources offline are more capable of taking advantages of the benefits that the internet brings, and can therefore use the technology more expertly, broadly and frequently (Helsper, 2012). For example, children from households with higher educational levels tend to have better access to technologies, are more digitally literate and therefore use the internet more intensively. But these children, despite being socio-economically less vulnerable and getting more benefits from internet use, also encounter more risks (and are therefore more likely to face negative outcomes) in their internet use because they use the technology more. Researchers working in this field of inclusion do not often consider the negative aspects of extensive use, nor do they discuss when extensive use might become excessive in that it leads to negative consequences.

From the above two frameworks it is clear that a delicate balancing act is required. It would be foolish to ignore the positive aspects of internet use while trying to prevent the internet from having negative consequences on a child's life. It is important to understand which types of socio-economic, emotional and psychological vulnerability, in which combination, are most likely to lead to negative outcomes from internet use.

We used the model presented in Figure 4 to guide our thinking. It recognises the importance of the 'psychological needs' compensation framework but also takes into account the relevance of socioeconomic characteristics such as education and quality of access to the internet by relating socio-demographic characteristics and psychological characteristics to internet use, and to excessive internet use.





The model can be studied through a statistical technique called 'path analysis'. This identifies different aspects of children's lives as separate variables. The relationships between variables can be tested in an indirect way (that is, answering the question 'How do age, gender and education influence psychological characteristics such as sensation-seeking, and how does sensation-seeking subsequently influence excessive use?') and in a direct way (for example, answering the question 'How does age influence excessive use directly, independently of the different levels of sensation-seeking within different age, gender and education groups?').

Table 1 shows how the variables used to test the model are related in direct and indirect ways to excessive internet use. The average score on the five questions is used to measure excessive use. The



socio-demographic, psychological and internet use characteristics explain just under one quarter (22%) of the variance in excessive use. This means that the variables in the model are relatively good at predicting which children will score high on excessive internet use.

These results suggest that those children who are most vulnerable to excessive internet use and its negative consequences are those who are older, with emotional problems and with high levels of sensation-seeking. The total effects, direct and indirect combined, show that more or less self-confidence is not important but sensation-seeking and emotional problems are. Children who spent more time online and had more digital skills were also more likely to experience negative outcomes (see Sonck et al., 2011, for the importance of digital skills in relation to use). It is possible that both frameworks identified earlier have some validity, and what determines excessive use is the combination of psychological vulnerability and online abilities and opportunities.

Table 1: Standardised direct and indirect relationshipsbetween socio-demographic, psychological and internetuse characteristics and excessive internet use

	Relationship with excessive use		
	Direct	Indirect	Total
Socio-demographic characteristics			
- Age - Education - Rurality - Gender (boys)	0.08 0.00 0.02 –0.20	0.17 0.02 0.01 –0.03	0.25 0.02 0.04 0.04
Psychological characteristics			
 Self-confidence Emotional problems Sensation-seeking 	-0.04 0.20 0.14	0.03 0.01 0.03	0.00 0.21 0.17
Internet use characteristics			
- Platforms - Time online - Internet skills	0.02 0.22 0.15		0.02 0.22 0.15
Excessive use			R ² = 0.22

Base: All children aged 11-16.

 $\ensuremath{\mathsf{R}}^2$ is the variance in excessive use explained by the other variables in the model.

Note: All relationships are significant; large effect sizes are indicated in bold.

Given that education, gender and whether someone lived in a rural area had very weak relationships to excessive use, the only socio-demographic indicator of

note was that older children were more likely to show several aspects of excessive use. Nevertheless, this relationship between age and excessive use was almost entirely indirect. Older children experienced more negative outcomes because they had more opportunities to access the internet, were more likely to be sensation-seekers and scored higher on internet use-related characteristics. Boys were slightly more at risk of excessive internet use, because of their higher levels of sensation-seeking. However, when a boy had the same level of sensation-seeking as a girl, he was less likely to use the internet excessively. In fact, a process work with complex was at factors simultaneously different directions. working in Increased self-confidence can compensate for older children's increased online opportunities and sensation-seeking, decreasing their overall levels of excessive internet use. In other words, it is not necessarily age and gender per se that lead to excessive behaviour, but these variables are part of a complex pattern of related factors.

Recommendations: In terms of preventing excessive internet use, the EU Kids Online results suggest that protective strategies should start offline and at an early age, taking note of when children display relevant psychological characteristics such as sensationseeking and emotional problems. When these matters are addressed directly, through parents talking and communicating openly about these issues, it is more likely to mean that time spent online, and the development of digital skills, will help the child move towards a healthy use of the internet as they get older. If psychological problems are not solved early on then the time spent online and digital skills might actually lead to a higher risk of excessive use. If the child already experiences excessive internet use, which is usually demonstrated by displaying all of the behavioural components identified earlier. we recommend that parents ask for help from relevant professionals, such as clinical or educational psychologists, or school counsellors, who can help solve the problem.

It is important to note that restricting the time young people spend online is not the best way to deal with excessive internet use since it ignores the causes of this behaviour. It might also steer children away from using the internet for beneficial reasons and cause or exacerbate conflict. Instead, offline emotional problems need to be tackled as early as possible. One benefit of this is that the child will be less likely to experience negative consequences of internet use.



Can families protect children from excessive internet use?

In this section we consider whether and how excessive internet use is correlated with different strategies parents use to support or regulate their children's online activities. The research literature proposes various parental strategies for managing their children's internet use to enhance their online safety. In this analysis we used three composite measures of parental activity: (1) active involvement in the child's internet use (for example, parents talking to their child about the internet, sharing their online activities or giving safety advice); (2) restrictions (direct rules limiting the child's use of particular applications or activities); and (3) monitoring and technical solutions (checking available records of the child's internet use and using filtering software or parental controls).

Table 2: Variables predicting excessive internet use(linear regression models)

	Model 1	Model 2
Parental mediation		
 Active involvement Restrictions Monitoring and technical solutions 	-0.01 -0.07 0.01	0.00 0.01 0.01
Parents' internet use		
- Uses the internet daily		-0.06
Demographics		
 Girls (compared with boys) Age 		-0.01 0.02
Child's internet use		
 Age of first internet use Time spent online (hours) Scope of online activities Digital skills Child has been bothered by something on the internet 		0.00 0.11 0.02 0.01 0.30
Interaction between bothered and		
 Active involvement Restrictions Monitoring and technical solutions 		-0.02 0.00 0.01
R^2	0.03	0.17

Base: All children aged 11-16.

 $\ensuremath{\mathsf{R}}^2$ is the total amount of variance explained by the predictor variables in the model.

Note: Significant relationships at p < 0.05 are indicated in bold.

Table 2 shows that restrictive mediation is associated with lower excessive use among adolescents. The effect of this type of mediation, however, is reduced significantly when other factors are taken into consideration (Model 2). Moreover, parental monitoring and technical solutions do not correlate strongly with preventing excessive use. Thus, the kinds of parental strategies that broadly correspond to an intrusive parenting style are not very effective in preventing adolescents' excessive internet use, but they can restrict the child's confidence and competence online and may also reduce the development of internet skills and competencies.

Active parental involvement in children's internet use is weakly correlated with lower excessive use. Higher excessive use goes hand in hand with a higher probability of being bothered or upset by something on the internet. Interestingly, however, where children have already been bothered or upset by something online, active parental involvement is associated with lower levels of excessive use (see Kalmus, Blinka & Ólafsson, under review). This type of parental mediation indicates a supportive and healthy family, which may have a positive impact on the psychosocial and personality development of adolescents, even if they have experienced something negative online.

Altogether, the three types of parental mediation have very low explanatory power, indicating that parental mediation has a modest effect on children's excessive internet use. Still, when the child has been bothered on the internet, the role of active parental mediation becomes more important.

Recommendations: We recommend that parents become actively involved in their child's online activities through support and discussion, especially, but not only, when a child has been bothered by something online. This also promotes a positive and warm atmosphere in the family, and reinforces the intended effect of parental mediation of internet use. We also suggest that policy initiatives support parents in developing active strategies to empower their children's online activities by enhancing their opportunities and digital literacy and safety skills. This can contribute to a reduction in problematic uses of the internet while increasing children's resilience to harmful online experiences. Awareness-raising campaigns and optional training courses for parents would help them be more effective, especially where parental mediation of children's internet use is discussed in the context of general parenting styles.



Conclusion

While a number of children said that they had experienced one or more of the five component behaviours of excessive internet use, few had experienced all of these. It is worth remembering that the EU Kids Online data indicate that few children, about 1%, are at risk of pathological levels of excessive internet use. It is also the case that children that did identify themselves as having experienced all five component behaviours also indicated that they faced a range of psychological and emotional challenges which had an impact on both their online and offline behaviours.

Although the analysis has been used to understand better the nature, causes and potential remedies for excessive (and problematic) internet use as defined in this report, parents and children may still disagree over whether their use is excessive, in the sense of whether the child uses the internet 'too much'. While the amount of time a child spends on the internet may be a source of conflict between the child and his or her parents, such conflicts are often a more general feature of life with a teenager and may reflect wider negotiations around responsibility, power and freedom. What is considered 'excessive use' in one family might be accepted as normal in another, and children are very sensitive to these comparisons. The friction triggered by the child's arguments and protests around what is normal and what is excessive internet use might reflect that child's understanding of the relative access the child has compared to that which is allowed to peers, rather than an underlying addiction to online activity. It is therefore important to focus on the outcomes of use rather than the use itself when discussing excessive use. When these outcomes are negative, especially when internet use conflicts strongly with other aspects of life, concerned parents and teachers should try to get to the underlying (offline and online) causes of this harm. Serious cases may need to involve specialist help, such as that provided by clinical psychologists, and school psychologists or counsellors.

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Country key

Austria (AT), Belgium (BE), Bulgaria (BG), Cyprus (CY) the Czech Republic (CZ), Denmark (DK), Estonia (EE), Finland (FI), France (FR), Germany (DE), Greece (EL), Hungary (HU), Ireland (IE), Italy (IT), Lithuania (LT), the Netherlands (NL), Norway (NO), Poland (PL), Portugal (PT), Romania (RO), Slovenia (SI), Spain (ES), Sweden (SE), Turkey (TR), the United Kingdom (UK).



Further reports available at www.eukidsonline.net

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<children, risk and safety on the internet>

Research and policy challenges in comparative perspective

Edited by Sonia Livingstone, Leslie Haddon and Anke Görzig

- The EU Kids Online network has been funded by the EC Safer Internet Programme in three successive phases of work from 2006–14 to enhance knowledge of children and parents' experiences and practices regarding risky and safer use of the internet and new online technologies.
- As a major part of its activities, *EU Kids Online* conducted a face-to-face, in-home survey during 2010 of 25,000 9- to 16-year-old internet users and their parents in 25 countries, using a stratified random sample and self-completion methods for sensitive questions.
- Now including researchers and stakeholders from 33 countries in Europe and beyond, the network continues to analyse and update the evidence base to inform policy.

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